

REMARKS

Claims 1-60 were pending at the time of the Office Action. Claims 27-34 were deemed to be allowed. No claims are amended or added. Accordingly, claims 1-26 and 35-60 are pending in the present application.

Allowable Subject Matter

Applicant gratefully acknowledges the indication in the Office Action that claims 27-34 are allowable over the prior art of record. Claims 27-34 remain in the application in their allowed form.

Applicant also gratefully acknowledges the indication in the Office Action that claims 19 and 23 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In Applicant's previous response dated April 11, 2005, claims 19 was rewritten in independent form. Claim 19 is once again presented as previously amended, and is believed to be allowable. Claim 23 depends from claim 19. Because claim 19 is believed to be allowable, claim 23 is also believed to be allowable.

In addition, claim 46 was presented as an original claim to Applicant's application. The Examiner has not rejected this claim in either of its Office actions, dated January 11, 2005 and July, 1, 2005, respectively. Therefore, Applicant believes that claim 46 is allowable.

§ 103 Rejections

Claims 1-18, 20-22, 24-26 and 35-46 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ieda, et al. (U.S. Patent App. Pub. No. 2001/0062644) in view of Seward et al. (U.S. Patent No. 6,107,972). These rejections are respectfully traversed.

Independent claims 1 and 35 are directed to an antenna system comprising a first core, a first winding disposed about the first core for transmitting/receiving electromagnetic signals, a second winding for transmitting/receiving electromagnetic signals disposed about the first core and the first winding, and an activation circuitry connected to the first winding and the second winding. The first winding and the second winding are wound such that a direction of the first

magnetic field generated by the first winding is different than a direction of the second magnetic field generated by the second winding, and the activation circuitry facilitates separate activation of the first winding from the second winding. The activation circuitry may include a multiplexer 28 to connect an RF signal send/receive circuitry 30 to only one of a first antenna 22 – corresponding to the first winding, and a second antenna 24 – corresponding to the second winding, at a time. (Specification, page 6, paragraph [0029]). In other words, the first antenna and second antenna may be time-multiplex so that only one antenna is active to send or receive RF signals or other magnetic or electromagnetic signals to a remote unit by activating only one antenna at a time. (Specification, page 6, paragraph [0029]). Therefore, interference between the antennas in the system is limited. (Specification, page 6, paragraph [0029]). An advantage of Applicant's invention is that data can be transmitted along all three coordinate axes and received by a remote controller/communication unit regardless of the antennas position proximate the remote controller/communication unit. (Specification, page 13, paragraph [0061]). This feature and its advantages are neither taught nor suggested in either Ieda et al. nor Seward et al.

Ieda et al. describes a loop antenna device for a key-less entry system of a vehicle, wherein the antenna is disclosed in a door handle of the vehicle door. Ieda et al.'s antenna includes a first antenna 6 comprising a first coil 9 wound around a thin prism core 8, and a second antenna 7 comprising a second coil 10 in a circular shape extending in a longitudinal direction of the core 8, outside of the first coil 9. (see Ieda et al., col. 2, paragraph [0025] and [0026]). One of the objectives of Ieda et al. is to eliminate the “magnetic field component –Hz [that] is reflected by [a] conductor plate” disposed within the vehicle door part. (see Ieda et al., col. 1, paragraph [0008]). According to Ieda et al., prior antennas were disposed apart from the conductor in order to avoid this problem, thereby increasing the size of the door handle. The key advantage of Ieda et al. is the addition of an electromagnetic absorbing member 14 disposed between the antenna and the conductor to reduce the component –Hz reflection, thereby enabling the thickness of door handles incorporating Ieda et al.'s invention to be reduced. (see Ieda et al., col. 2, paragraph [0030]). However, Ieda et al. neither teaches nor discloses the use of an activation circuitry to activate the first coil separately from the second coil to limit antenna interference.

Acknowledging the foregoing, the Examiner attempts to combine Seward et al. with Ieda et al. to arrive at Applicant's invention. Seward et al. describes a multi-band antenna for AM/FM, CB and cellular communications. Seward et al. employs multiple coils, but each are oriented in the same direction (see Seward et al., Fig. 1). A multiplexer 103 is used to selectively (and individually) interface the multiple apparatuses (AM/FM, CB and cellular receivers) with the antenna.

The combination of a loop antenna for a key-less vehicle entry system described by Ieda et al. and a multiplexer in a multi-band antenna system as described by Seward et al. would not have been obvious to one of ordinary skill in the art. First, as further explained below, neither Ieda et al. nor Seward et al. provide motivation to connect Seward et al.'s multiple apparatuses (AM/FM, CB and cellular receivers) to Ieda et al.'s loop antenna designed to reduce the reflection of the magnetic field component –Hz from conductive parts within a vehicle door handle. Second, as also further explained below, the purpose of switching antennas in Seward et al. (to connect a particular one of the different frequency AM, FM, CB or cellular receivers to the appropriate antenna for that receiver) would not seem to apply to Ieda et al.'s key-less entry system.

First, Ieda et al. discloses an antenna that includes two orthogonal windings, where the only disclosed purpose of the orthogonal orientation of the two windings is to transmit a signal to a remote detection unit within the vicinity of the car door handle. Because the remote unit neither requires nor involves transmitting signals to devices such as AM/FM radios, CB radios, cellular devices and the like, one skilled in the art would not find reason to selectively connect Seward et al.'s multiple apparatuses (AM/FM, CB and cellular receivers) to Ieda et al.'s antenna, designed to reduce the effects of conductors on the antenna's electromagnetic fields. In this first regard, one of ordinary skill in the art would not have found it obvious to employ Seward et al.'s multiplexer with Ieda et al.'s antenna, to provide different radio frequency signals for transmitting and receiving, as suggested in the Office Action.

Second, the features of Ieda et al.'s antenna do not solve a problem that would commonly arise in the context of multi-band communications. Seward et al. discloses two problems that do commonly arise in the multi-band context: 1) designing an antenna for receiving frequencies in

multiple frequency bands (*see* Seward et al., col. 1, ll. 30-31) and 2) minimizing mismatch effects between the antenna and the multiple apparatuses (e.g. AM/FM, CB and cellular receivers) (*see* Seward et al. col. 1, ll. 64-67). To solve these two problems, Seward et al. respectively teaches 1) forming a single, continuous antenna wire with a plurality of self-resonant circuits and 2) designing a multiplexer to provide multiple frequency-dependent impedance paths between the antenna and the multiple apparatuses (AM/FM, CB and cellular receivers). In contrast, Seward et al. does not disclose requiring an antenna to be disposed along a given orientation. Furthermore, the noted problem does not commonly arise in the context of a multi-band communications system. Because the prior art fails to teach of any useful purpose of using Ieda's multiple-winding antenna in the context of multi-band communications, it would not be obvious to one skilled in the art to combine Ieda et al.'s loop antenna with Seward et al.'s multiplexer.

Claims 2-18, 20-22, 24-26 and 36-46 depend either directly or indirectly from independent claims 1 and 35. Thus, these claims are also distinguished over the cited art in light of the arguments set forth above.

The mere fact that references can be combined for modified does not rendered the resultant combination obvious unless the prior art also suggests the desirability of the combination. *See* M.P.E.P. §2143.01. At least for the above reasons, Applicant respectfully submits that the Patent and Trademark Office has not made out a *prima facie* case of obviousness under the provisions of 35 U.S.C. § 103 and that the rejections of claims 1-18, 20-22, 24-26 and 35-46 must be withdrawn.

Claims Previously Presented

In Applicant's previous response dated April 11, 2005, new claims 47-53 and 54-60 were presented. The Examiner has not rejected these claims, therefore, Applicant believes that claims 47-53 and 54-60 are allowable. In addition, and by virtue of their dependency from claims 1 and 35, respectively, it is believed that claims 47-53 and 54-60 are also patentable over Ieda et al. and Seward et al.

Claim 50 further recites that “the activation circuitry activates both the first winding and the second winding to receive the magnetic field” and that “a stronger of the received magnetic field at the first winding and the received magnetic field at the second winding is chosen for processing” (see Paragraph 32 of Applicant’s written description). Neither Ieda et al. nor Seward et al. teaches selecting a stronger of multiple received magnetic fields. Thus, it is further believed that claim 52 is patentable over the cited references. Claim 59 recites similar features. Thus, it is also further believed that claim 59 is patentable over the cited references.

Claim 51 further recites that “the activation circuitry activates only one of the first winding and the second winding at a time to receive the magnetic field” relating to the same information (see Paragraph 31 of Applicant’s written description). Neither Ieda et al. nor Seward et al. discloses activating only one of the multiple winding to receive a magnetic field relating to the same information. Thus, it is further believed that claim 51 is patentable over the cited references. Claim 58 recites similar features. Thus, it is also further believed that claim 58 is patentable over the cited references.

Further, claim 53 recites that “the first core is disposed on an implantable unit configured for implantation in a body of a medical patient.” Neither Ieda et al. nor Seward et al. teaches disposing the core on an implantable medical device. Thus, it is further believed that claim 53 is patentable over the cited references. Claim 60 recites similar features. Thus, it is also further believed that claim 60 is patentable over the cited references.

Conclusion


In view of the forgoing, it is believed that the application is in condition for allowance. Reexamination and reconsideration of the application are requested. If the Examiner believes that the application is not in condition for allowance for any reason, the Examiner is requested to contact the undersigned attorney at the Los Angeles telephone number (310) 975-7963, to discuss steps that the Examiner may believe are needed to place the application in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 05-0872. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit

Account No. 05-0872. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 05-0872.

Respectfully submitted,

Date: September 29, 2005
FOLEY & LARDNER LLP
Customer Number: 23392
Telephone: (310) 975-7963
Facsimile: (310) 557-8475

By: 
Uleses C. Henderson, Jr.
Attorney for Applicant
Registration No. 53,013